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DRIVING CONDITIONS OF THE GRAND TRUNK ROAD, INDIA

The following Expert Report, in providing a context for the March 27, 1996, accident on India's Grand Trunk Road, takes into account several fundamental areas of inquiry. These are:

a) background explanation and description of the road

b) road and driving conditions in India in general;

c) road and driving conditions on the Grand Trunk Road both day and night, and on that 120-mile part of the road from Delhi heading south to Agra, where the accident in question occurred;

d) an examination of whether an accurate assessment of the danger level of such road conditions is readily available outside India;

e) an exploration of what the various sources of information on Indian road travel which were readily available in the United States, in the few years before the Semester at Sea journey in question took place, had to say about the Grand Trunk Road;

f) an assessment of what alternate modes of travel there were at the time, given the unavailability of plane seats.

This Expert Report, therefore, attempts to address the question of whether, in light of reasonably accessible travel information, the decision to send students on the Grand Trunk Road, by bus, at night or even by day, was -- given the extreme nature of Indian roads and drivers in general and of that road in particular -- an irresponsible one.

My qualifications for writing this Expert Report are these:

In August 1997 my travel book Days and Nights on the Grand Trunk Road appeared (Marlowe & Co., New York, 383 pp.) This work is a narrative of my 1500-mile journey by car from Calcutta, in eastern India, northwest up the Grand Trunk Road, across India via both Agra and Delhi, then across Pakistan and through the Khyber Pass to the Afghan border. The book is a result of several journeys I made along the Grand Trunk Road between 1991 and 1996. (I first visited India as a journalist, and traveled along that road, in 1984.) In my research I traversed parts of the road once, other parts twice, and some parts three or four times. Thus I am, I believe, the only U.S. journalist to have traveled the Grand Trunk Road -- one of the most perilous roads in the world -- in its entirety. Former U.S. Ambassador to India, Frank G. Wisner, in praising the book as "instructive... and illuminating," wrote recently: "I recommend [it] to any reader -- from a newcomer to the subcontinent to an informed scholar or commentator." (July 15, 1997)

My professional background is the following: I began my career as a journalist in 1982, soon after graduating from Yale University. I have worked entirely as a freelance reporter for magazines, specializing in travel articles with an emphasis on foreign politics, social, and cultural issues. I have written over 140 feature articles for GEO (U.S., French, & German ed.), National Geographic, Condé-Nast Traveler, Forbes FYI, New York, Smithsonian, Travel & Leisure, The New York Times Magazine,

Vogue, G.Q., Portfolio, Merian, Pan, Delta SKY, TWA Ambassador, Travel Holiday, European Travel and Life, Gourmet, Merian, and numerous other periodicals. In 1993 I was awarded a Lowell Thomas Medal for Excellence as a Foreign Correspondent.

In connection with these articles, I have traveled widely in many parts of the Middle East and Asia, Europe, the South Pacific and the Caribbean. Thus, my perspective on the road conditions in India in both my book and in this Expert Report is derived from first-hand comparisons with road conditions I have personally experienced in Egypt, Oman, Syria, Jamaica, Dominica, Guatemala, Mexico, Italy, Morocco, Tahiti, New Zealand, France, Spain, Cuba, England, Poland, Switzerland, Yugoslavia, Burma, Malaysia, Fiji, Thailand, Dubai, Indonesia, Pakistan, Abu Dhabi, Jordan, Bahrain, Turkey, Cyprus, Israel, and Greece, among others.

Of all these, Indian roads are the worst maintained, the most lawless, uncontrolled, and unpredictable, the most dangerous I have ever witnessed. The Grand Trunk Road is the most extreme and the most risky in this regard. The reasons for this are manifold and substantial, and will be detailed later.

My secondary knowledge of Indian road conditions described in this Expert Report is derived from the very extensive research behind my recent book mentioned above. There is probably not much about the Grand Trunk Road that, at this point, I have not read.

With respect to the road conditions examined herein, my principal research sources outside my own extensive experience are the following:

Numerous books, principally non-fiction travel narratives about India similar in journalistic approach to mine, published in the 1990s, with relevant material on road conditions; likewise a 1995 large-format book of photographs of the Grand Trunk Road by one of the most highly regarded photographers alive. Further, several articles by experienced journalists appeared in the years 1990-5 about the Grand Trunk Road, and these similarly explore the issue of road conditions and hazards. Such first-rate and high-profile books, photos, and articles have relevance to the case and I draw from them.

Quite a few travel guidebooks to India, or to specific parts of India, are easily available in the U.S. I quote from several of these, all published well prior to the accident, as well as from the reports of several travel advisory specialists. One very significant question I will explore is whether the many serious dangers of Indian roads are apparent and even highlighted in the copious guidebook and advisory literature available prior to 1996 in the United States and Europe.

Lastly, I also draw on the considerable amount of serious analysis done by experts in the field of road safety within India. India, despite its reputation as a backward country, is on a governmental and "official" level extremely aware of its highly treacherous roads, which (measured by various quotients) are from ten to twenty times more dangerous than those of the U.S. Thus there exists an abundance of expert and detailed studies of these problems and conditions, extensive statistics and tables of data,

plus the transcriptions and reports of numerous symposia and seminars, etc. Anyone wishing to measure the risk of being on India's roads could draw from these, just as I have in citing relevant facts and figures about Indian roads in these pages.

For the sake of brevity, from here on I will frequently refer to the Grand Trunk Road as the "GT".

I. The Grand Trunk Road -- Background

The GT is about thirty-five centuries old, and has been the principal route across the subcontinent for countless generations of invaders, traders, holy men, wayfarers, and pilgrims. It in some sense the Route 66 of India, but is still its busiest and most important highway. It links the central capital, Delhi, to the cities of Calcutta, Benares (a.k.a. Varanasi), Allahabad, Agra, Kanpur, and Amritsar. The GT also passes through thousands of lesser towns and virtually forgotten villages where it is literally the main street, passing through and dividing one side from the other.

The ancient GT, also known as the Sher Shah Suri Marg, was repaired by the Moguls in the 16th and 17th centuries and later fell into disrepair. The British lavished considerable care and expense on restoring it in the 19th century and keeping it paved right through the Indian independence a half-century ago (1947). This history of repair or great disrepair, maintenance or non-maintenance, is necessary to understanding its severe and unreliable condition now.

The British spent one hundred fifty years clearing the road, planting shade trees, widening it in places, propping up the embankments that often line both sides, and paving it. The main railroad line of northern India, British-built, follows the GT like a shadow; commercially the two are still mutually dependent, crossing the vast plain of the Ganges River. Nowadays the road is dominated by a large proportion of India's one million trucks, careening down it as fast as possible both day and night in a constant, deadly battle for position.

II. The Grand Trunk Road -- Description and Conditions

It is difficult for someone who has never been to India to accurately visualize what roads there, the GT Road specifically, are like. The most important National Highway in India does not actually resemble what most of us think of as a "highway"; it resembles what an American might call a broken country back road. There are potholes literally everywhere. It narrows and widens constantly without warning. It is for the most part badly paved at best and often no longer paved at all where the British paving has worn away (with the exception of a few brief stretches near the capital or on several modern bridges.) It is also often used by villagers for other purposes: drying dung cakes or harvested corn stalks, by children as a playing field, etc. These villagers will often erect their own "speed breaks" with bad results.

The GT is utterly vulnerable to the long monsoon rains and punishing heat of about six months each year. The heat bakes and

cracks what paving is left, which the constant heavy and diverse traffic whittles to dust; then the torrential rains come along and make it all into a thick mud which the relentless traffic renders even more uneven and which often becomes impassable before it is eventually, cheaply, and inadequately re-paved.

The British Empire, in a perpetual war with the climate, lavished huge amounts of money and manpower on trying to keep up the road; the Indian government for fifty years simply hasn't had the resources to do so. Repairs, when they are made, are done to render a particularly difficult patch passable for that moment, and are done in the Indian spirit not of rectifying a problem long-term but of just making it surmountable for a few days. This is partly because it is in many people's interests to find meager work for many, too many, hands -- rather than solve a problem once and for all.

The GT is, however, carrying the dense traffic of the most important road in the subcontinent. This means predominantly a stampede of six-wheeler, two-axle trucks, which in another country might be termed very large lorries. In design they are somewhat top heavy, and they are invariably overloaded. The legal limit is ten tons (truck and cargo together) but most carry at least five to seven <u>extra</u> tons of cargo since the truckers are paid by the ton. (As truckers get fined for lateness, they are trying desperately to keep to very difficult schedules.) At weigh stations or when stopped by police along the way, a bribe of several hundred rupees allows the overloaded truck to go on.

As many drivers pointed out to me, this constant overloading is one important reason that there are so many truck accidents on the GT. The hysterical nature of Indian traffic and roads means that trucks are constantly swerving to avoid a collision, and a truck overloaded by 50% or 70%, in swerving, goes out of control far more easily than one loaded only to the legal limit. Whenever a truck overturns, there is the added danger of its cargo -- say, coal, concrete blocks, wood, metal pipe links -- spilling and flooding the road.

Another frequent and related problem with trucks is that from this extra weight an axle may easily break without warning, and then the truck overturns. Trucks may also, through ingenious repairs, be kept on the road thirty or forty years -- long after they are, in safety terms, unsound. The same is true of tires, which are often overused to the point of baldness. The trucks rarely have reliable hand brakes -- because of this, one often sees the tires blocked with large rocks when the truck is parked at a dhaba (truckers' roadside rest areas) -- and government reports over the last ten years repeatedly assign many truck and bus accidents to faulty brakes. As there is no stringent policing system of tire and brake condition by the authorities, it is up to the owners of the trucks -- who are often not the truckers themselves -- to take the expensive initiative of repair.

These government reports also (correctly, in my experience) lay blame on the fact that "rarely does any heavy vehicle have effective brake lights. The vehicle behind the heavy vehicle has

to be intuitionally driven because there is no indication the truck or bus ahead is going to stop, slow down or turn." (Report of the Working Group on Roads, Government of India Ministry of Surface Transport, 1989; paper given by Anil Chotmarada).

For any traveler, a secondary problem which makes the road extremely unpleasant is the carbonous black smoke of trucks, the awful fumes that can leave anyone feeling they need antibiotics after only a half hour, aided and abetted by coal smoke and residue from brick kilns, steel mills, textile factories. The air along the Grand Trunk Road is some of the worst in India, due to the pell-mell density of vehicles.

India is, of course, a land of many rules and regulations, with a deep love of the bureaucracy of law. It should be clearly understood that in the area of road safety, these are not enforced. In a country where most people, even civil servants, routinely earn a few hundred dollars a year, a modest bribe can undo many hindrances.

Thus, thanks largely to the truckers, the road is like a deadly video game in which obstacles and other vehicles come at you constantly. Lives, trucks, valuable cargos are risked to gain a few feet's advantage over others, since speed of delivery is of the essence. (The same mindset rules bus drivers.) Heavily overloaded trucks swing out to pass even if more trucks are careering out of control at them from the opposite direction. The usual pattern on the GT -- and indeed on all the busy National Highways -- is one truck in the correct, left-hand position and

two more passing it on the right, jockeying for position while other trucks charge straight at them at top speed; but often there may be another vehicle trying to pass on the road's left or right shoulders as well. The GT, most often two unmarked lanes narrow, is always treated as if it were several lanes wide, and is most aggressively fought-for in a non-existent middle lane of trucks coming headlong at each other.

This hell of overloaded trucks jousting against one another makes up most of the GT's traffic, in which all lesser vehicles battle to survive. Apart from trucks, the only other substantial vehicles going any distance on the GT are local buses, which (depending on the model) carry either twenty or thirty-five seated passengers inside and as many seated illegally on top and often another dozen clinging precariously to the outside and at least another twenty standing inside. It is notable that compared to daylight hours, relatively few such buses operate after nightfall on the GT (or indeed on any major route) because such roads in darkness are considered much too dangerous.

The buses are the only vehicles large enough to challenge the trucks, apart from the tankers which carry oil, gas, milk, chemicals, etc. The other vehicles are highly varied and thus represent another danger of the road simply because they are not trucks, and being often slower and always smaller, are hence a serious interference to the trucks. These are predominantly motorcycles, tractors, bicycles, bicycle-rickshaws, motorized rickshaw vans (i.e. used for cargo, not passengers); tempo-taxis

(a strange amalgamation, rather like a very large elongated motor-rickshaw); tongas (horse-drawn wooden carriages) and smaller ekkas (horse- and pony-carts) used for passengers or cargo; wooden oxen-carts, scooters, motorized vans or the occasional tourist bus; and animals, singly or in herds -- most often elephants, water buffalo, camels, bears, pigs, goats, wild peacocks, and oxen. The infamous sacred cows often have a knack for wandering along the middle of the road. Despite drivers' desperate efforts to brake suddenly, their willingness to be in any accident rather than injure a sacred cow, they may end up as food for the watchful vultures just as easily as the many doomed stray dogs.

One result of all this motley activity is that the road is less a highway of trucks and buses than a highway of all manner of Indian life, and to weave through its daredevil variety of traffic consumes a great deal more concentration in a driver than would a Western road bearing only a limited range of vehicles.

Outside of cities or towns, when the GT splices into a village, a lot of the road traffic will suddenly consist of village-to-village movement, either on foot or by simple means (animal-drawn carts and wagons) as goods are carried to market. There are also very often wayfarers walking along the edges of the road or even trying to cross it, who are at the cruel mercy of every other form of transport.

There are very few private cars on the Grand Trunk Road, or indeed going any distance in India, as "petrol" is in local terms

considered quite expensive. People take local buses, or to go longer distances, trains.

In many parts of the Grand Trunk huge ditches run along either side, resulting in a number of otherwise avoidable wrecks when a truck or bus, in swerving to avoid a collision, goes off the road and topples in and flips over or hits something. These ditches are constantly weakening the road itself from both sides and from below when the rainy season hits. The GT also runs for much of its length through farmland which, being watered on both sides, and sometimes flooded, weakens the sub-structure of the GT. There is also the constant problem of drainage after rain; often the drains are blocked by garbage. The GT is known to simply collapse in places without any warning, along its sides, at any time of the year, as a result of these insidious attritions and their makeshift repairs.

At different times in my own journey I counted the remnants of accidents (usually smashed-up buses and trucks) and arrived over the course of my 1500-mile odyssey at a constant rate of one every two kilometers. They were the most frequent, of course, in the busiest half of the road, from Benares through Kanpur, Agra, and Delhi. It was therefore not surprising to me that every Indian with whom I discussed my project -- traveling the length of the GT -- looked aghast at the prospect and told me it was a terrible idea, that surely the road would kill me. No Indian, of the hundreds with whom I talked, not one, had any illusions about the safety of the GT.

The actual road is therefore suffering under constant attack from weather and a near-total lack of effective maintenance, due partly to the fact that traffic along it has grown at the rate of 10% annually for some time. It also suffers from an overwhelming and particularly Indian tendency towards disorder.

There are (with only a few brief exceptions) no dividing barriers on the GT. The result is that a road barely wide enough for two lanes of traffic most of the time -- one in each direction -- has instead a chaos of trucks sometimes three or four abreast, all vying for position, trying to overtake, hurtling straight at each other, and most dangerously crossing from lane to lane regardless of what direction it or they are going in. There are no lane markers either. Thus there are effectively no lanes: there is only a struggle for speed and position.

Were there dividing barriers so that a lane of traffic was really forced to only go in one direction -- as on the Grand Trunk Road in Pakistan -- then the Indian roads would all be considerably safer.

There are other crucial safety elements missing from the GT -- and from Indian roads in general -- besides lane-dividing barriers. There is no speed-measuring radar, no "traffic cops" to regulate traffic speed or to wave traffic around obstacles or particularly bad areas of the road or even put up warning markers which might indicate those problems. Instead there are only police or army checkpoints here and there along the GT, whose

main function is to extort bribes from drivers. Once a bribe has been paid, for example due to the overloading of the truck, the driver is then given a chit which he can show to other police further up the road -- so he can continue in his illicitly overloaded state until he unloads at his destination.

Other aspects of road conditions which we take for granted do not obtain in India. Quite a few road signs in India are verbal (i.e. non-pictograph) and written in English, which very few of the truckers or other drivers can read. (Literacy in India is only around 52%, in any case.) When it comes to pictographs, one Indian government study found that only 31% of drivers knew the meaning of road signs; the same study determined that 28% of Indian road signs were also wrongly placed.

There are no street or highway lights of any sort on the GT to aid with night driving outside cities or large towns, and even there they are irregularly placed and irregularly functioning due to frequent power blackouts. There are rarely barrier-gates to shut the road down when it crosses over the tracks of the main railway line, which it does many times, and most such level railway crossings are unmanned. Often there are no warning signs that a level railway crossing is even being approached, and no lights indicating it at night. As a result there are often accidents when traffic gets caught on a crossing by a train.

There are still very few seat belts in Indian cars, using them is not a habit, and they are almost totally unknown in passenger buses. There are few hospitals along the roads between

cities in the event of serious accidents and in any case no ambulances to bring the injured in or on-call transport to bring a doctor to them. "There is no clear-cut agency," according to a government transport study, "... for lifting accident patients to hospitals." Police rarely have even basic first-aid equipment.

There are other risks in the event a hospital is reached. The truckers of the GT are one of the prime mediums of the spread of AIDS through India, via the prostitutes along the way. As a result India now has more HIV carriers than any other nation; the rate is ten times higher among truckers than in the normal population, perhaps as much as three in ten. The rate of HIV infection in India's general blood supply has been estimated at anywhere between one-fourth and two-thirds. As a result of these infected truckers and their equally infected prostitutes, the blood banks of hospitals along the GT should be considered particularly deadly. (This situation has been amply written about in August, 1995, by John Ward Anderson for The Washington Post.)

There are, likewise, no breakdown services to help with repairs and hence no one professional to call for mechanical assistance in the event of an accident; thus a breakdown often involves someone walking a considerable distance to find a mechanic, and delays can be not hours but days even with a minor mechanical problem.

There are also no "state police" to call or look to for assistance. And because Indian locals who live on the road are used to seeing serious accidents, and often stripping an injured